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ABSTRACT

A study examined potential variables that editors might use to lure young readers into a newspaper reading habit. A total of 204 high school students were asked to read and rate one of 20 newspapers (collected from around the country) on enjoyment, readability, and attractiveness. The newspapers' efficiency in transmitting information was also tested through knowledge recall questions. Results showed that subjects: (1) found newspapers more enjoyable if they contained fewer stories and many pullout quotes; (2) more readable with many pullout quotes and small lead photographs; and (3) more attractive with many photographs and large graphics. Results further showed that subjects were able to recall information more efficiently if the newspapers were judged to be enjoyable, used a high number of pullout quotes, used a horizontal design, scored lower on a human interest measure, jumped more stories and contained stories written at a lower grade-reading level. Four suggestions for editors include increasing the use of pullout quotes, using smaller lead photographs but larger graphics and more photos, limiting the amount of text on front pages, and stressing simpler writing styles and fewer human interest stories. (Five tables of data are included and 30 references are attached.) (Author/SR)

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Young Readers and the Newspaper: Factors Affecting Information Recall and Perceived Enjoyment, Readability and Attractiveness

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Young Readers and the Newspaper: Factors Affecting Information Recall and Perceived Enjoyment, Readability and Attractiveness

Abstract

A total of 204 high school students were asked to read and rate one of 20 newspapers collected from around the country on its enjoyment, readability and attractiveness. The newspapers' efficiency of transmitting information was also tested through knowledge recall questions. The regression analyses generally show papers that used accompanying materials, such as pullout quotes and many, though smaller, photographs, were more enjoyable, readable, attractive and efficient.

Young Readers and the Newspaper: Factors Affecting Information Recall and Perceived Enjoyment, Readability and Attractiveness

Abstract

An experiment attempted to examine potential variables that editors might use to lure young readers into a newspaper reading habit. A total of 204 high school students were asked to read and rate one of 20 newspapers collected from around the country on its enjoyment, readability and attractiveness. The newspapers' efficiency of transmitting information was also tested through knowledge recall questions. Independent variables included writing styles and design elements.

Subjects found newspapers more enjoyable if they contained fewer stories and many pullout quotes. Subjects believed newspapers were more readable if they used many pullout quotes and small lead photographs. Subjects believed newspapers were attractive if they used many photographs and large graphics. Subjects were able to recall information more efficiently if the newspapers were judged to be enjoyable, used a high number of pullout quotes, used a horizontal design, scored lower on a human interest measure, jumped more stories and contained stories written at a lower grade-reading level.

Four suggests are offered. First, editors should increase their use of pullout quotes, which apparently increase readers' perceived enjoyment and readability and improve the readers' ability to recall information. Second, editors should use smaller lead photographs, but larger graphics and more photos, which may make pages fresher by providing more variety in page appearances than the less flexible "dominant art" designs. Third, editors should limit the amount of text on front pages by including fewer stories and more visuals. Fourth, editors should stress simpler writing scyles and fewer human interest stories.

Young Readers and the Newspaper: Factors Affecting Information Recall and Perceived Enjoyment, Readability and Attractiveness

Editors across the country are becoming increasingly concerned about the low levels of newspaper reading among younger members of the public. A recent survey by the Times Mirror Center for the People & the Press (1990), for example, found that 75 percent of respondents age 18 to 29 admitted that they had not read a newspaper the day before they were surveyed -- the highest percentage of any demographic category.

A number of factors could lure young individuals into the newspaper reading habit. Two important areas could be improvements in the appearance of newspapers' front page and improvements in the writing style of news stories.

The potential for attracting young readers through improved design techniques was emphasized by Christine Urban, president of Urban & Associates, who reported to the International Newspaper Marketing Association that newspapers need better display and more stylish packaging to attract young readers. Urban said young readers regard dull graphics, badly printed color and writing and headline styles as boring. She recommended that editors provide more innovative display of stories to attract scanners (see Gersh, 1987).

Writing styles also could influence how readers view their reading experience. As Fusaro and Conover (1983)

argue, if the readability levels of a newspaper demand too much of a reader's skills, reader satisfaction will plummet.

This study will address two important questions for newspaper editors: First, is it possible to produce newspaper stories and pages that young readers will find enjoyable, readable and attractive? Second, is it possible to produce newspaper stories and pages that can increase the ability of these young readers to process and recall information efficiently?

If young individuals find the newspaper enjoyable, the stories readable and the pages attractive, they may return to the newspaper at later dates, thereby developing a newspaper reading habit.

In addition, if young individuals are able to process news content and are able to effectively recall this information at a later time, they may develop a reading habit because of the efficient nature of the newspaper to provide important information necessary for informed citizens. When young readers process information more efficiently, their satisfaction with the reading experience will be higher. Knowing how to increase reader satisfaction translates into stronger circulation figures because satisfied readers are more likely to return to newspapers for additional information in the future.

This study, then, may have important practical implications for editors throughout the United States.

Theoretical framework

This study essentially has two parts. First, the study examines affective responses: the perceived enjoyment, readability and attractiveness of 20 U.S. newspapers as judged by 204 high school students, mostly 18-year-old seniors. Second, the study examines cognitive responses: how these 204 high school students processed and recalled information published in the 20 newspapers.

The independent variables examined here fall into two broad categories: 1. content variables, such as writing styles contained in stories; and 2. design variables, such as the packaging of stories on the newspaper page.

* Content variables: Research into writing styles contained in newspapers stories has a long tradition in mass communication.

Rudolf Flesch conducted important early work in this area. Flesch (1962) determined that readability depended on two factors: the difficulty of reading and a "human interest" measure. Reading difficulty deals with length of words and length of sentences. Human interest, on the other hand, assumes that people will find material easier to read and will be more motivated to read it if it contains personal references and direct speech. Human interest scores would be raised, then, if a text has "personal words," such as personal pronouns, gender-specific nouns (father, sister, etc.), group words (people), and "personal sentences," such as quotes, questions and imperatives.

Researchers have attempted to apply Flesch's readability notions to journalistic writing styles. Danielson and Bryan (1964), for example, examined the writing complexity of eight categories of news sent over news wires. They found that hard news stories were written in a more difficult to understand writing style. They did find, however, that the typical story could be comprehended by individuals reading at the sixth grade level.

A more recent study, however, found leads of news stories to be much more difficult to comprehend. Stapler (1985), in examining 360 stories in 12 U.S. newspapers, found that the mean length of the lead paragraph was 26.1 words, which ranked in the "difficult to read" range developed by Flesch (1962) and Gunning (1952).

Gunning's reading ranges, it should be noted, were based solely on sentence length. He felt that the longer the sentence, the more difficult it is to comprehend. Since longer sentences have more words, longer sentences mean more relationships between words. More relationships, in turn, require the reader to expend more mental energy, which reduces reader satisfaction. In addition, sentence length can hamper reading comprehension because of humans' limited memory span (Klare, 1963).

A number of researchers have called for newspapers to simplify their writing styles. Burgoon, Burgoon and Wilkinson (1981) argue that newspapers should lower their readability levels if they want to increase their

effectiveness. Smith (1984) and Fowler (1978) both warn that large segments of the population may become isolated if newspapers continue to be written above the reading level of many readers.

In summarizing research in this area, Stone (1987) concludes that hard news stories are more difficult to read than non-hard news content, and that "newspaper content generally is written at a reading level the average person might regard as difficult (p. 47)." In addition, Stone argues that while writing styles may be complex, "readers express no difficulties with the writing styles of newspapers (p.51)."

Based on previous studies, then, writing style variables might have some effect on readers' affective and cognitive responses. Potential variables include: 1. words per sentence, 2. syllables per word, 3. grade-level readability, 4. Flesch's readability measure and 5. Flesch's human interest measure.

* Design variables: Newspaper design recently has received increased attention as an area of research. A number of studies, for example, have examined readers' reactions to "modern" design formats, which include horizontal, modular makeup, fewer stories, no column rules, six-column format, use of boxes, down-style heads, modern Roman type and white space around heads.

Click and Stempel (1974) found readers overwhelmingly endorsed modern-format pages. Weaver, Mullins and McCombs

(1974), however, found no indication that modern design was associated with increased circulation.

Garcia, Click and Stempel (1981) found design changes made by newspapers were immediately recognized and accepted by readers. This preference was even more pronounced three weeks after implementation of the design changes.

Bain and Weaver (1979) note that readers hate jumped stories and thus suggest that editors should jump fewer stories.

Readers also appear to react positively to visual elements, such as photographs and graphics. Baxter, Quarles and Kosak (1978) found that readers like photographs and regard them highly. Photos lend interest to other newspaper content, such as stories, captions and headlines.

Polansky (1988) found that the typical pattern for a reader processing information on the page begins with the dominant photograph. Bain (1980) concludes that large pictures attract readers to an accompanying story better than small pictures and also hold the readers' attention deeper into the story. Curley (1979) argues that graphics and packaging are especially important to younger readers.

Visual messages also appear to be easier to process than verbal messages. Schleuder (1991), for example, in an examination of visual and verbal information recall, found that short-term visual recognition was higher than short-term verbal recall for both advertisements and news stories.

Design techniques that combine visual and verbal elements are pullout quotes. Though no research has been conducted on this device, since readers enjoy visuals, they should also react positively to pullout quotes -- which are quotes pulled from sources in accompanying stories that are run in larger type than the related story text.

Finally, Garcia and Fry (1986) found that readers preferred color to black and white and that color was regarded as more credible and more ethical. Color also influences eye movement by drawing the reader to elements printed in color.

Based on previous studies, then, some design variables that might have some effect on reader preferences and information recall are use of modern design formats and use of visuals. The variables examined here are: 1. the number of stories on the page, 2. the number of stories that jumped, 3. the use of horizontal design, 4. the number of graphics, 5. the size of graphics, 6. the number of pullout quotes, 7. the number of photos, 8. the size of the lead photo, and 9. the use of color. Previous studies suggest readers prefer fewer stories, fewer stories that jump, horizontal design, many large graphics, pullout quotes, and photographs and liberal use of color.

Method

* Subjects: A total of 204 high school students in nine Illinois high schools participated. The students, mostly

18-year-old seniors, came from a variety of classes, including English, civics and government.

High school students were used to add to the validity of the results for a number of reasons. First, these individuals are more representative of the average newspaper reader than are college students, the typical subjects for scholarly experiments, on a number of important demographic variables. High school students obviously are lower in education level, an important consideration since the median years of school completed by U.S. citizens is 12.7 (Kominski, 1991).

The high school students in the study are also highly heterogeneous and come from a variety of backgrounds, an advantage which was further enhanced by the use of a wide range of high schools. Enrollments of students in the participating high schools ranged from 1,276 (Centralia High School) to 85 (Coulterville High School). In addition, this study purports to examine young readers' responses to newspapers. Thus, 18-year-old high school students form an appropriate sample.

* Treatments: Each subject read one of 20 newspapers that were collected from across the country. The newspapers were selected based on two criteria. First, some newspapers were selected because they received a large number of awards for page designs as determined by the Society of Newspaper Design (see Society of Newspaper Design, 1990). Second, some newspapers were selected because they were judged as one of

the top newspapers in the country (see Merrill, Lee and Friedlander, 1990; and Editor & Publisher, 1983).

Editors from the 17 newspapers that were unavailable through a university library were contacted and asked to provide newspapers dated January 4 through 11, 1991, for use in a publications design class. The present study grew out of this class.

It should be noted that only one newspaper -- the Dallas Morning News -- declined to provide copies of its papers. It also should be noted that the New York Times and Washington Post were not included in the study because of a distribution problem. Table 1 lists the 20 newspapers used in the study and their respective circulations.

The January 10, 1991, edition of each newspaper was used in the study. The selection of January 10 was purposive: the topic of the lead story was the same in each case (the failed meeting between U.S. Secretary of State James Baker and Iraqi Foreign Minister Tariq Aziz to avert war in the Persian Gulf), but the presentation of the lead story and other stories on the pages varied greatly. For example, some newspapers used two or three photographs, while others used none. A few used some type of Gulf crisis graphic. Many used pullout quotes. Some newspapers ran four or five stories dealing with the Gulf crisis. Others ran stories dealing with such diverse topics as gang murders and high school girls' use of chewing tobacco.

Treatments, then, were actual newspaper pages that had been read earlier by thousands of readers. The pages were not altered in any way.

Each subject within each participating class was randomly assigned to one of the 20 newspaper treatments. Subjects were instructed to read the front page of the newspapers for 30 minutes, then answer a quiz dealing with information contained in the stories. All questions were short answer, since educators have criticized multiple-choice tests as being inaccurate measures of a student's knowledge. Included on the quizzes were questions dealing with the newspapers' enjoyment, readability and attractiveness, as judged by the subject.

* Time frame: The study was conducted in April and May of 1991, or two to three months after the Gulf War and a few months after the newspapers were published.

* Dependent variables: Four dependent variables were examined. The first three variables were single response items. Respondents were asked: "On a scale of 1 to 10, with 1 being not enjoyable and 10 being extremely enjoyable, how enjoyable would you say reading this newspaper was?" Similar questions asked subjects to rate the readability and attractiveness of the newspapers.

A six-item index was formed to determine the subjects' information recall. Subjects were given zero to two points for each answer to the six questions dealing with stories on

the newspaper front pages. If they answered a question correctly, they received a score of two. If they were within 10 percent of quantitative questions or if they were within a week of a correct date, they received a score of one. If they missed a question by more than 10 percent or by more than a week, or if they failed to answer the question, they received a score of zero.

For example, a question dealing with a story in the Atlanta Journal asked "Approximately how many Americans are killed each year by passive smoke?" The correct answer of 53,000 received a score of "2." An incorrect answer between 47,700 and 58,300 received a score of "1." An answer below 47,700 or above 58,300, or if the subject failed to answer the question at all, resulted in a score of "0."

Questions dealing with nominal answers, such as a question asking for a specific newsmaker's name or title, was scored two for correct answers and zero for incorrect answers.

Scores on the six questions were then summed to produce an "information recall" index. Since each newspaper in the study contained some stories unique to that paper, a different quiz was written for each page. In other words, 20 quizzes were written -- one for each of the 20 newspapers in the study.

* Independent variables: Each page included in the study was content analyzed on a number of variables, including both writing and design variables.

Newspaper scores on the writing style variables were determined by use of the software developed by Long (1989). The variables were:

1. average sentence length, or the number of words per sentence.

2. average syllables per word.

3. grade-level readability.

4. Flesch's human interest measure, which as noted earlier is determined by such elements as number of quotes and pronouns (see Flesch, 1962).

5. Flesch's readability measure, which takes into consideration such elements as the length of words and length of sentences.

The first three paragraphs of all stories on each of the pages were content analyzed for the above variables.

The design variables were:

1. the number of stories on the page, coded as a raw score. Modern-design studies suggest that readers prefer fewer stories on front pages.

2. the number of stories that jumped, again coded as a raw score. Modern-design studies suggest that readers prefer fewer jumped stories on front pages.

3. horizontal design, determined by the average number of columns across which each story ran. Each story was coded for the number of columns it ran across. The scores of all stories were summed, then divided by the number of stories on the page. A low score would indicate a vertical design, with

many one-column stories. A high score would indicate a horizontal design, with many multi-column stories. Modern-design studies suggest that readers prefer horizontal designs.

4. the number of graphics, coded as a raw score.

5. the size of graphics, coded in square inches.

6. the number of pullout quotes, coded as a raw score.

7. the number of photos, coded as a raw score.

8. the size of the lead photo, coded in square inches.

9. the use of color. Newspapers were coded as 3 if all photos and illustrations contained full color, 2 if some of the photos and illustrations contained full color but others were black and white, 1 if only spot color was used, and 0 if the page was entirely black and white.

Because of common characteristics of newspapers in the study, a few modern-design variables were not included. All newspapers in the study used a modular makeup, six-column format, boxes, modern Roman type and white space around heads. None used column rules. These variables, then, were not examined.

* Statistical analyses: Stepwise regression analyses tested the relative influence of each of the independent variables on the four dependent variables: enjoyment, readability, attractiveness and information recall. In addition, since the perceived enjoyment, readability and attractiveness of the papers also could influence how

individuals process and recall information, these three variables were included as independent variables in the final analysis of information recall.

One potential shortcoming of the study should be noted. Some of the students may have been avid readers of stories dealing with the Gulf crisis, and thus may have been able to recall information about the war without reading the treatments. However, randomization of subjects into treatment groups should have lessened this problem.

Results

Table 2 shows the stepwise regression analysis for the enjoyment variable. Two independent variables were entered into the analysis. According to the results, subjects were more likely to respond that they thought the newspapers were enjoyable if the newspapers used fewer stories and if they used more pullout quotes. Generalizability, however, is somewhat limited since the variables, while statistically significant, explain only 5.1 percent of the total variance.

Table 3 details the stepwise regression analysis for the readability variable. Again, two independent variables were entered into the analysis. According to the results, subjects were more likely to respond that they thought the newspapers were readable if the newspapers used more pullout quotes and if they used smaller lead photographs. The variables explain 7.6 percent of the total variance.

Table 4 summarizes the stepwise regression analysis for the attractiveness variable. Two independent variables were

entered into the analysis. According to the results, subjects were more likely to respond that they thought the newspapers were attractive if the newspapers used more photographs and if they used larger graphics. The four variables explain 9.9 percent of the total variance.

Finally, Table 5 shows the stepwise regression analysis for the information recall variable. Six independent variables were entered into the analysis. According to the results of the analysis, subjects were more likely to score high on their ability to recall information if: 1. the newspapers were judged to be highly enjoyable by subjects; 2. the newspapers used more pullout quotes; 3. the papers had a more horizontal design with more columns per story; 4. the papers had a lower human interest score; 5. the paper used more jumps; and 6. the stories were written at a lower grade reading-level. Overall, the variables explain 26.5 percent of the variance, the largest explained variance of any dependent variable.

Discussion

The purpose of this study was to examine the perceptions of newspaper content and the ability to process and recall information from newspapers by young readers. Twenty newspapers from across the country were used as treatments, with 204 high school students taking part. The study is based on the assumption that if young individuals perceive newspapers to be enjoyable, readable and attractive, and if

young individuals are able to efficiently process and recall information contained in the newspapers, they may return to the newspapers for additional information in the future and form a reading habit.

The findings suggest a number of areas that editors may want to emphasize in attempts to lure young individuals into a newspaper reading habit.

First, a number of variables affected the subjects' attitudes about the newspapers in the study. Subjects believed newspapers were enjoyable if the papers used few stories on their front pages and many pullout quotes. Subjects believed newspapers were readable if they used many pullout quotes and small lead photographs. Subjects believed newspapers were attractive if they used many photographs and large graphics. Overall, then, according to the results of the attitudinal analyses, one finding was repeated over two of the three variables: subjects preferred many pullout quotes.

In addition, this study found six variables that helped young readers process and recall information. Readers were better able to recall information if the newspapers were judged to be enjoyable, used a high number of pullout quotes, used a more horizontal design, scored lower on a human interest measure, jumped more stories, and contained stories written at a lower reading-level. In other words, these variables led to more efficient transmission of information from the newspapers to the subjects taking part.

While these were the only variables that were entered into the regression analysis for knowledge recall, it should be noted that the first variable (enjoyment) was actually composed of two other variables. As Table 2 shows, newspapers were judged to be more enjoyable if they used a low number of stories and a high number of pullout quotes. These variables, therefore, also indirectly affected the subjects' ability to recall information.

Moreover, one variable appears to be especially influential in helping individuals efficiently process and recall information: pullout quotes, which both directly and indirectly -- through their affect on reader enjoyment -- led to higher information recall.

In addition, the results suggest that some areas that have drawn considerable attention from editors and scholars alike have little influence on the perceptions and recall ability of young individuals.

First, the writing styles of news stories had surprisingly little influence. Though five writing style variables were examined for each of the four dependent variables (or 20 tests) only two were entered into any of the regression analyses -- both in the analysis of knowledge recall.

The reason for the limited effects of writing styles is puzzling. Perhaps stories are written so similarly that content differences were barely noticeable between readers. Indeed, the grade reading-level for the first three

paragraphs of stories in all 20 newspapers in the study varied only from 10th to 16th grade.

In addition, many of the stories may have been written in a writing style that was too difficult for many of the subjects in our study to comprehend. Though the sample of high school seniors was used to add to the validity of the findings, perhaps the results do point out the need for simpler writing styles. In other words, had any of the newspapers used a significantly simpler writing style, the effects of writing complexity may have been more apparent, since subjects would have been able to process the information with less effort.

Curran (1977) also argues that readability is not the same as comprehensibility or useability. He believes that readability formulas are based on atheoretical correlational studies and explain little about the comprehension process.

In any case, the findings suggest that editors should place less emphasis on the writing of stories and more on the packaging of content if they want to attract young readers. Redish (1980) supports this notion, arguing that readability is necessary but not sufficient to ensure the comprehensibility of material. Many other factors affect whether written material will be understood than can be included in a readability formula. She points out that typographic features, unmeasured in readability formulas, can affect comprehension.

Second, the indifference toward color shown by the subjects also was unexpected. Other visual variables, such as the size and number of photos, had more influence on the subjects. The lack of influence of color, however, could be due to the subjects' previous low exposure to color pages on a consistent basis. Though the Chicago Tribune and St. Louis Post-Dispatch, both of which run a great deal of color, are distributed in most of the cities in which this study was conducted, the local newspapers are mostly black and white. Results may have been different if the subjects who took part had been exposed to color daily through their newspapers.

Suggestions for editors

The findings here, then, offer a number of suggestions newspapers might use to improve their product in the eyes of young readers.

First, editors should increase their use of pullout quotes, which apparently increased readers' perceived enjoyment and readability and improved the readers' ability to recall information. This simple device appears to be an important element on a newspaper page, one which readers positively respond to, and which also helps readers process information efficiently.

Perhaps this device helps readers understand the significance of stories through important quotations while also drawing attention to accompanying stories. Pullout quotes, then, may sum up important points made in the story, which in turn may help readers retain additional information

from related stories. It also may help attract scanners by encouraging them to read accompanying stories. At the very least, pullout quotes provide typographical relief, lessening the grayness of long strips of text and thus making the pages more enjoyable and attractive to readers.

Second, editors should re-consider their use of visuals carefully. The results here suggest the use of smaller lead photographs, which is contrary to the current trend of the use of dominant art. On the other hand, the results suggest larger graphics and more photographs. Subjects, then, responded more positively when smaller photos were used with a number of different stories on the pages and when a graphic dominates the page.

More photos may make pages fresher by providing more variety in page appearances than the less flexible dominant art designs. Large graphics, meanwhile, provide readers with important information in a concise manner and thus make processing information easier.

Third, allocation of space to stories also should be re-examined. The results here suggest front pages should contain fewer stories and more stories that jump. These two findings suggest that editors should devote more space to visuals and less to the text of stories. Readers prefer visuals, including larger graphics and more, but smaller, photographs.

Finally, two writing variables had a somewhat lesser influence on the subjects in our study. Editors should

concentrate more on simpler writing styles, as previous studies (Stapler, 1985; Burgoon, Burgoon and Wilkinson, 1981; Smith, 1984; and Fowler, 1978) have suggested, and less on human interest stories. Readers were able to recall information from stories written in a hard-news style more easily than they were able to recall information from stories containing human interest elements, which again seems contradictory to previous research.

While Danielson and Bryan (1964) found that hard news stories are written in a more difficult style than feature stories, subjects here were able to process and recall information in the hard news stories more efficiently. Perhaps hard news stories are written in a more difficult style, but are easier to process because these types of stories are more common in newspapers than human interest features. Since readers are more familiar with hard news stories, they may be able to process information in these stories more efficiently.

The use of the inverted pyramid in hard news stories also may make information easier to process. By placing important information in descending order in stories, reporters get to the point of their stories sooner, thus helping readers understand the significance of content.

Moreover, hard news stories contain more concrete information. Yagade and Dozier (1990) conclude that concrete issues have a stronger agenda-setting effect on readers than do abstract issues. Perhaps stories with more concrete

information also are easier to process than the more abstract human interest stories.

Overall, the findings point to the fruitfulness of examining young individuals' perceptions and processing ability of newspaper contents. Apparently, if newspapers provide materials that accompany news stories and help readers mentally picture the stories and place the stories in perspective, young readers will find their experiences with newspapers more enjoyable and their time more efficiently spent.

References

Chic Bain (1980), "Newspaper Design and Newspaper Readership: A Series of Four Experiments," Center for News Communications Research Report 10, School of Journalism, Indiana University, Bloomington.

Chic Bain and David Weaver (1979), "Readers' Reaction to Newspaper Design," Newspaper Research Journal, 1:48-59.

William S. Baxter, Rebecca Quarles and Hermann Kosak (1978), "The Effects of Photographs and Their Size on Reading and Recall of News Stories," ERIC Document Reproduction Service No. 159-722.

Judee K. Burgoon, Michael Burgoon and Miriam Wilkinson (1981), "Writing Style as a Predictor of Newspaper Readership, Satisfaction and Image," Journalism Quarterly, 58:225-231.

J.W. Click and Guido H. Stempel III (1974), "Reader Response to Modern and Tradition Front Page Make-Up," ANPA News Research Bulletin 4 (June).

Thomas Curley (1979), "Readers Want Latest News, Consistent and Complete Newspapers," Gannetteer pp 6-8 (March).

T.E. Curran (1977), "Survey of Technical Manual Readability and Comprehensibility," Technical Report 77-37, (San Diego: Navy Personnel Research and Development Center).

Wayne A. Danielson and Sam Dunn Bryan (1964), "Readability of Wire Stories in Eight News Categories," Journalism Quarterly, 41:105-106.

Editor & Publisher (1983), "Best in the USA: Top 15 Dailies picked by 610 news leaders," (June 11, p. 11).

Rudolf Flesch (1962), The Art of Readable Writing (New York: Collier Books).

Gilbert Len Fowler Jr. (1978), "The Comparative Readability of Newspapers and Novels," Journalism Quarterly, 55:589-592.

Joseph A. Fusaro and Willis M. Conover (1983), "Readability of Two Tabloid and Two Non-Tabloid Newspapers," Journalism Quarterly, 60:142-144.

Mario Garcia, J. William Click and Guido H. Stempel III (1981), "Reader Response to Redesign of St. Cloud Daily Times," Newspaper Research Journal, 2:36-41

Mario Garcia and Don Fry (1986), Color in American Newspapers (St. Petersburg, Fla.: Pointer Institute for Media Studies).

Debra Gersh (1987), "Reaching the Younger Generation," Editor & Publisher, pp 34-50, (June 13).

Robert Gunning (1952), The Technique of Clear Writing (New York: McGraw-Hill).

George R. Klare (1963), The Measurement of Readability (Ames, Iowa: Iowa State University Press).

Robert Kominski (1991), "Current Population Reports: Population Characteristics," Department of Commerce Series P-20, No. 451 (August).

David Long (1989), "Sensible Grammar," version 1.5.5, serial no. 123894, Sensible Software.

John C. Merril, John Lee and Edward Jay Friedlander (1990), Modern Mass Media (New York: Harper & Row Publishers).

Sharon Polansky (1988), Address to the Pittsburgh Design Conference, cited in Daryl R. Moen (ed.) (1989), Newspaper Layout and Design, 2nd edition (Ames, Iowa: Iowa State University Press).

Janice C. Redish (1980), "Readability," in Daniel B. Felker (ed.), Document Design: A Review of the Relevant Research (Washington: American Institute for Research).

Joan Schleuder (1991), Measuring Psychological Responses to Media Messges (Hillsdale, NJ: Lawrence Earlbaum Associates).

Ron F. Smith, "How Consistently Do Readability Tests Measure the Difficulty of Newswriting?" Newspaper Research Journal, 5:1-8.

Society of Newspaper Design (1990), The Best of Newspaper Design, 11th edition (Washington: Society of Newspaper Design)

Harry Stapler (1985), "The One-Sentence/Long-Sentence Habit of Writing Leads and How It Hurts Readership," Newspaper Research Journal, 7:17-27.

Gerald Stone (1987), Examining Newspapers: What Research Reveals About America's Newspapers (Newbury Park, Calif: Sage Publications.

Times Mirror Center for The People & the Press (1990), "The American Media: Who Reads, Who Watches, Who Listens, Who Cares," report of research findings (July 15).

David H. Weaver, L.E. Mullins and Maxwell E. McCombs (1974), "Competing Daily Newspapes: A Comparison of Content and Format," ANPA News Research Bulletin No. 8 (December 31).

Aileen Yagade and David M. Dozier (1990), "The Media Agenda-Setting Effect of Concrete Versus Abstract Issues," Journalism Quarterly, 67:3-10.

Table 1. Newspapers included in the study.

Newspaper	Circulation
1. Atlanta Constitution	316,793
2. Atlanta Journal	191,811
3. Baltimore Sun	343,609
4. Boston Globe	521,354
5. Chicago Tribune	721,067
6. Des Moines Register	207,126
7. Detroit Free Press	636,182
8. Norfolk (Va.) Ledger-Star	77,655
9. Los Angeles Times	1,196,323
10. Louisville Courier Journal	233,714
11. Miami Herald	428,931
12. Milwaukee Journal	265,461
13. Philadelphia Inquirer	519,895
14. St. Louis Post-Dispatch	382,381
15. St. Petersburg Times	353,130
16. San Francisco Examiner	136,346
17. San Jose Mercury News	278,676
18. Seattle Times	233,995
19. Syracuse Herald-Journal	93,449
20. Washington Times	97,188

Table 2. Regression analyses examining "enjoyment" as dependent variable.

Independent variable	Beta	Standardized Beta	T-value	Sign.
1. Number of stories	-.316	-.167	-2.416	.017
2. Number of pullout quotes	.131	.147	2.127	.035

Multiple R: .226
R-Square: .051
Adjusted R-Square: .041

Table 3. Regression analysis examining "readability" as dependent variable.

Independent variable	Beta	Standardized Beta	T-value	Sign.
1. Number of pullout quotes	.181	.200	2.863	.005
2. Size of lead photograph	-.099	-.115	-2.159	.032

Multiple R: .275
R-Square: .076
Adjusted R-Square: .067

Table 4. Regression analysis examining "attractiveness" as dependent variable.

Independent variable	Beta	Standardized Beta	T-value	Sign.
1. Number of photographs	.499	.297	4.266	.000
2. Size of graphics	.140	.210	3.018	.003

Multiple R: .315
R-Square: .099
Adjusted R-Square: .090

Table 5. Regression analysis examining "knowledge recall" as dependent variable.

Independent variable	Beta	Standardized Beta	T-value	Sign.
1. Perceived enjoyment	.426	.312	4.892	.000
2. Number of pullout quotes	.241	.194	2.657	.009
3. Columns per story	1.292	.182	2.533	.012
4. Human interest measure	-.079	-.249	-3.179	.002
5. Number of jumps	.556	.248	3.274	.001
6. Grade reading-level	-.459	-.173	-2.296	.023

Multiple R: .514
R-Square: .265
Adjusted R-Square: .241